

## Abstract

A holographic recording and reproduction apparatus has a spatial light modulator for converting digital information to a two-dimensional image and for intensity modulating an object beam based on the two-dimensional image. The spatial light modulator is configured to employ four or more pixels on the two-dimensional image as a unit pixel block, and allow at least two types of encoded patterns having a different number of ON pixels in the unit pixel block to be present at the same time for display of the two-dimensional image. During a reproduction operation, a two-dimensional photodetector detects the amount of light on per unit pixel block basis to determine the number of its ON pixels and then set a threshold, and thereafter an image pickup device detects the image.